

REMARKS

This application has been reviewed in light of the Office Action dated March 25, 2003. Claims 1-5, 7-16, 18-20, 31-41, and 55 are presented for examination and claims 1-5, 7-16, 18-20, and 31-41 have been amended to define still more clearly what Applicant regards as her invention. Claims 6, 17, and 42-44 have been canceled, without prejudice or disclaimer of subject matter. Claim 55 has been added to provide Applicant with a more complete scope of protection. Claims 1, 7, 12, 18, 31, 33, 35, 38, 40, and 55 are in independent form. Favorable reconsideration is requested.

Claims 1-20 and 28-30 were rejected under 35 U.S.C. § 102(e) as being anticipated by WO 97/36453 (*Hodgkinson*), and claims 31-44 were rejected under 35 U.S.C. § 103(a) as being obvious from *Hodgkinson* in view of U.S. Patent No. 6,148,000 (*Feldman et al.*). Cancellation of claims 6, 17, and 42-44 renders the rejections of those claims moot.

As shown above, Applicant has amended independent claims 1, 7, 12, 18, 31, 33, 35, 38, 40 in terms that more clearly define what she regards as her invention. Applicant submits that these amended independent claims and newly added independent claim 55, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The present invention is directed to sending and receiving data. As described in detail in the specification, in conventional systems, where packets of data are transmitted in connected and non-connected transmission modes, information is added in a header of the packet to indicate whether the transmission mode is a connected or non-connected mode. However, it

would be more efficient if the information, where the sole purpose is to indicate the transmission mode, is not required to be added to the packet header. The aspects of the present invention are intended to address the foregoing problem by enabling the node for which the packet is intended to determine whether the packet has been transmitted in a connected or non-connected mode. This is accomplished by, in general terms, combining the means and advantages of packet source routing and of the transmission, in the packet header, of information (virtual channel and source node).

The aspect of the present invention set forth in claim 1 is a transmission method of transmitting data on at least one path on a network between a source node sending data and a destination node receiving the data during a communication session. The network being adapted to transmit data in at least one connected mode, in which isochronous data is transmitted, and at least one non-connected mode, in which asynchronous data is transmitted. The session includes transmission of at least one packet, which includes user data and additional data defining the path on the network which the user data will follow. The transmission method includes when the packet is received, the destination node performs reading the additional data, and determining the transmission mode, connected or non-connected, taking into account the additional data. The additional data includes a data item representing a virtual channel and a data item representing the source node. During the determination step, the destination node takes into account the data items representing both the virtual channel and the source node in order to determine the transmission mode, connected or non-connected. The data item representing the source node is placed in addition to the virtual channel in order to enable the destination node to identify the virtual channel used by the user data.

One important feature of claim 1 is the data item representing the source node is placed in addition to the virtual channel in order to enable the destination node to identify the virtual channel used by the user data. This feature is particularly useful when two or more data user streams are sent from different source nodes. In fact, both the virtual channel and the identifier of the source node allow the destination node to determine the difference between different user data streams that are received.

Hodgkinson relates to a method of transmitting an asynchronous transfer mode (ATM) cell over an ATM network between an ATM input interface and an ATM output interface. The *Hodgkinson* method transmits data over an ATM network comprising a set of interconnected switches, and which is suitable for transmitting data either in a connectionless manner or in a connection-oriented manner.

In the ATM network of *Hodgkinson*, all the virtual channels used to transmit data are uniquely defined once. A centralized management, as in the case of the *Hodgkinson* ATM network, implies that a virtual channel number is allocated once for all the nodes of the network. In contrast, the present invention of claim 1 does not require a centralized management, and in particular the virtual channel used by the user data is not required to enable the destination node to identify the virtual channel. By virtue of this, management of the network is made easier, because it does not require any centralized procedure (see page 9, line 26, to page 10, line 2, of the specification).

Further, in the *Hodgkinson* method, the switch node reads the PT field (Payload Type) to determine whether a connectionless service is required or not (page 11, lines 6-9 and 17-28). This PT field represents additional data in addition to other fields of the header

which includes VPI (Virtual Path Identifier) and VCI (Virtual Channel Identifier) data (page 5, lines 9-12). As shown in Table 1 on page 6 of *Hodgkinson*, the PT field is different from the VCI and VPI fields, and the PT field represents additional data (it is a predefined value, for example "111", used to indicate that the service is connectionless) (page 10, lines 18-20). In contrast, the present invention of claim 1 does not require a PT field to determine whether the transmission mode is connected or non-connected.

In the Examiner's response to arguments by Applicant in the Amendment dated January 9, 2003, the Examiner argues that *Hodgkinson* at page 5, lines 5-25, and Figure 7 discloses that the determination of the transmission mode is also made in the "destination switching node". Applicant believes this is a misapprehension of that portion of *Hodgkinson*. The cited portion merely discloses that at each switching node, the values of the VPI and/or VCI fields are read and one or both of the values are used together with a routing table to select an output port. The Examiner appears to equate the "destination node" of claim 1 with a "destination switching node"¹. In fact, on page 9, lines 11 and 12, of *Hodgkinson*, it states that the source node will normally be at the input interface to the ATM network shown in Figure 5. Further, on page 9, line 33, to page 10, line 1, it states that the destination address is normally at the output interface. Moreover, on page 11, lines 3-5, it states that the operations depicted in Figure 7, including determining whether the service is connectionless, are performed at each switch between the input interface and the output interface of each ATM cell. Accordingly,

¹Applicant has found nothing in *Hodgkinson* that discloses a "destination switching node".

determining the mode of transmission mode is not conducted on the source and destination nodes, but only on the intermediate nodes.

Further, *Hodgkinson* states that at each switching node between the ATM input interface and the ATM output interface, a specific field (PT field) in the ATM cell header is read to determine if the cell is to be forwarded in a connectionless manner (page 2, lines 13-25, page 3, lines 11-15, and page 4, lines 4-9). This is done so that the routing tables do not need to be set up by signaling each transmission of ATM cells between a particular access node and a particular destination node. Accordingly, reading of the PT field represents a specific processing in *Hodgkinson* to deal with the routing of packets in the network. Because it is a question of routing packets in the network, it is well understood by one skilled in the art that there is no need to implement such a processing (reading of the PT field) in a destination node, where there no longer is a problem of routing by definition. Thus, the processing in *Hodgkinson*, in which the intermediate switch nodes read the PT field to determine whether a connectionless service is required, is not disclosed with respect to the destination node.

In the aspect of the present invention, defined in claim 1, it is of interest to determine the transmission mode, connected or non-connected, at the destination node, so as to apply to the packets a different processing according to their transmission mode. For example, if isochronous data is transmitted and reaches the destination node, then a processing is applied which consists of directing the concerned packet to a FIFO memory. However, if asynchronous data is transmitted, then a specific processing is applied to the concerned packet in order to interpret, for example, the commands contained in the packet. Nothing has been found in

Hodgkinson that would teach or suggest determining, at the destination node, the transmission mode, connected or non-connected, as recited in claim 1.

Still further, nothing has been found in *Hodgkinson* that would teach or suggest the data item representing the source node is placed in addition to the virtual channel in order to enable the destination node to identify the virtual channel used by the user data, as recited in claim 1.

Furthermore, *Hodgkinson* is not seen to teach or suggest the feature that a transmitted packet includes additional data defining the path on the network which the user data will follow. That is, in claim 1 of the present invention, a “source routing mechanism” is implemented at the source nodes in the packets to be transmitted, whatever the transmission mode, connected or non-connected. The source routing mechanism consists of determining the route for the packet to be transmitted at the source node, and transmitting the packet together with all the addresses of the switch nodes that are encountered by the packet on its path.

In contrast, *Hodgkinson* does not use a “source routing mechanism”. In the *Hodgkinson* method, the route or path that a packet follows is not defined entirely by the information contained in the additional data of a packet, since routing tables in the switch nodes are necessary (page 11, lines 13-15, and 23-25). Accordingly, nothing has been found in *Hodgkinson* that would teach or suggest the feature that a transmitted packet includes additional data defining the path on the network which the user data will follow, as recited in claim 1.

For at least the reasons discussed above, Applicant believes that claim 1 is clearly allowable over *Hodgkinson*.

Independent claim 12 is a system claim corresponding to method claim 1, and is believed to be patentable for at least the same reasons as discussed above in connection with claim 1. Additionally, independent claims 7 and 18 include similar features discussed above in connection with claim 1. Accordingly, claims 7 and 18 are also believed to be patentable for reasons similar as those discussed above in connection with claim 1.

The aspect of the present invention set forth in claim 31 is a transmission method of transmitting user data from a source node to a destination node. The transmission method comprises, performed by the source node, a first determination step, of determining additional outward data defining the path to be followed on the network by the user data, defining an identifier of the source node, and sending at least one packet of user data and additional outward data which relate to it. The transmission method also includes, performed by the destination node, on reception of the packet, reading the identifier in the additional outward data, and checking for correct reception of the user data and. In the event of correct reception, a second determination step, of determining additional return data defining a path going from the destination node to the node identified by the identifier, and acknowledging by sending acknowledgment data indicating correct reception of the user data and of the additional return data. During the first determination step, the source node defines additional outward data representing a virtual channel which the user data must follow, the identifier of the source node being placed in addition to the virtual channel, thereby enabling the destination node to identify the virtual channel used by the user data.

The applied art, alone or in combination, is not seen to disclose or suggest the invention as defined by independent claim 31, and in particular the features that the source node

defines additional outward data representing a virtual channel which the user data must follow, where the identifier of the source node being placed in addition to the virtual channel, thereby enabling the destination node to identify the virtual channel used by the user data, and at the source node, determining additional outward data defining the path to be followed on the network by the user data.

For reasons substantially similar to those discussed above in connection with claim 1, Applicant believes that claim 31 is clearly allowable over *Hodgkinson*, taken alone.

As discussed previously, *Feldman et al.* concerns a switching apparatus and a method for receiving and transmitting data units which are each segmented into a series of cells of data. *Feldman et al.* uses standard IP routing protocols as the basis for switching IP data grams, packets, frames, and other data units in switching environments, such as asynchronous transfer mode (ATM) environment, with the addition of a virtual circuit establishment protocol.

However, nothing has been found in *Feldman et al.* that would teach or suggest the source node defining additional outward data representing a virtual channel which the user data must follow, where the identifier of the source node being placed in addition to the virtual channel, thereby enabling the destination node to identify the virtual channel used by the user data, and at the source node, determining additional outward data defining the path to be followed on the network by the user data, as recited in claim 31.

For at least the above reasons, even if *Hodgkinson* and *Feldman et al.* were to be combined in the manner proposed in the Office Action, assuming such combination would even be permissible, the resulting combination would fail to teach or suggest at least those features of Claim 31.

Accordingly, Applicant submits that claim 31 is patentable over *Hodgkinson* and *Feldman et al.*, taken separately or in any proper combination.

Independent claims 33, 35, 38, and 40 include the similar features discussed above in connection with claims 1 and 31. Accordingly, claims 33, 35, 38, and 40 are also believed to be patentable for reasons similar as those discussed above in connection with claim 1 and 31.

The aspect of the present invention set forth in new claim 55 is a determination method of a transmission mode for a data packet transmitted between a source node and a destination node which are connected through a switching network. The switching network is adapted to transmit data in a plurality of modes, including a connected mode where isochronous data can be transmitted and a non-connected mode where asynchronous data can be transmitted. The data packet includes user data and additional data which defines notably a path on the network which the user data will follow and includes a data item representing a virtual channel. The determination method includes a determination step performed at the destination node, of determining whether the packet was transmitted in connected or non-connected mode, where the determination is made on the basis of the data item representing the virtual channel. Support for the features of claim 55 can be found at least on page 9, line 7 to page 10, line 8, and on page 19, lines 4-7, where it is explained that the source node places, in addition to the virtual channel number, the unique identifier which it has on the network in the additional data that accompanies the user data, which enables the destination node to identify the virtual channel used by the user data, without any ambiguity.

Independent claim 55 is believed allowable over the cited art for at least the following reasons. As discussed previously in connection with claim 1, the processing in which intermediate switch nodes read the PT field to determine whether a connectionless service is required, is not disclosed with respect to the destination node. That is, nothing has been found in *Hodgkinson* that would teach or suggest determining, at the destination node, whether the packet transmitted was transmitted in connected or non-connected mode, as recited in claim 55. Further, as discussed above, *Hodgkinson* is not seen to disclose the feature that the data packet includes additional data which defines notably a path on the network which the user data will follow (source routing mechanism), as recited in claim 55. Still further, the present invention, as recited in claim 55, does not require additional data, as in *Hodgkinson*, with regards to the PT field.

Nothing has been found in *Feldman et al.* that would overcome the deficiencies of *Hodgkinson*.

For at least the above reasons, Applicant believes that claim 55 is clearly allowable over cited art.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

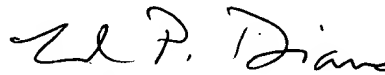
This Amendment After Final Action is believed clearly to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R.

§ 1.116. Accordingly, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicant's undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



Attorney for Applicant

Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY MAIN 358304